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* * * * * * * * * * * * * * STN Columbus * * * * * * * * * * * * * * *

FILE 'HOME' ENTERED AT 09:53:26 ON 17 SEP 1998

=> fil .bec

COST IN U.S. DOLLARS                                    SINCE FILE      TOTAL
                                                             ENTRY    SESSION
FULL ESTIMATED COST                                           0.15       0.15

FILES 'MEDLINE, SCISEARCH, LIFESCI, BIOTECHDS, BIOSIS, EMBASE, HCAPLUS, NTIS,
       WPIDS' ENTERED AT 09:53:46 ON 17 SEP 1998
ALL COPYRIGHTS AND RESTRICTIONS APPLY.  SEE HELP USAGETERMS FOR DETAILS.

9 FILES IN THE FILE LIST

=> s carbon(2a)(flux or flow)

FILE 'MEDLINE'
        150084 CARBON
         15563 FLUX
        223723 FLOW
L1         447 CARBON(2A)(FLUX OR FLOW)

FILE 'SCISEARCH'
        184515 CARBON
         68821 FLUX
        321907 FLOW
L2        1488 CARBON(2A)(FLUX OR FLOW)

FILE 'LIFESCI'
         30417 CARBON
          7110 FLUX
         30623 FLOW
L3         623 CARBON(2A)(FLUX OR FLOW)

FILE 'BIOTECHDS'
          7350 CARBON
           970 FLUX
          9135 FLOW
L4         147 CARBON(2A)(FLUX OR FLOW)

FILE 'BIOSIS'
        184155 CARBON
         31636 FLUX
        243930 FLOW
L5        2319 CARBON(2A)(FLUX OR FLOW)

FILE 'EMBASE'
         90873 CARBON
         18357 FLUX
        233846 FLOW
L6         562 CARBON(2A)(FLUX OR FLOW)

FILE 'HCAPLUS'
        655216 CARBON
        151799 FLUX
        463217 FLOW
L7        3198 CARBON(2A)(FLUX OR FLOW)

FILE 'NTIS'
         65281 CARBON
         33823 FLUX
        152238 FLOW
L8         221 CARBON(2A)(FLUX OR FLOW)
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FILE 'WPIDS'
        222771 CARBON
         55533 FLUX
        460840 FLOW
L9         813 CARBON(2A)(FLUX OR FLOW)

TOTAL FOR ALL FILES
L10       9818 CARBON(2A)(FLUX OR FLOW)

=> s l10(6a)(modif? or alter? or increas?)

FILE 'MEDLINE'
        215753 MODIF?
        400195 ALTER?
       1198529 INCREAS?
L11         51 L1 (6A)(MODIF? OR ALTER? OR INCREAS?)

FILE 'SCISEARCH'
        255562 MODIF?
        332804 ALTER?
        954227 INCREAS?
L12         89 L2 (6A)(MODIF? OR ALTER? OR INCREAS?)

FILE 'LIFESCI'
         59910 MODIF?
        106649 ALTER?
        308930 INCREAS?
L13         53 L3 (6A)(MODIF? OR ALTER? OR INCREAS?)

FILE 'BIOTECHDS'
         17122 MODIF?
         12072 ALTER?
         39064 INCREAS?
L14         25 L4 (6A)(MODIF? OR ALTER? OR INCREAS?)

FILE 'BIOSIS'
        244386 MODIF?
        429932 ALTER?
       1395761 INCREAS?
L15        123 L5 (6A)(MODIF? OR ALTER? OR INCREAS?)

FILE 'EMBASE'
        207839 MODIF?
        394262 ALTER?
       1189486 INCREAS?
L16         59 L6 (6A)(MODIF? OR ALTER? OR INCREAS?)

FILE 'HCAPLUS'
        523248 MODIF?
        479238 ALTER?
       2316509 INCREAS?
L17        108 L7 (6A)(MODIF? OR ALTER? OR INCREAS?)

FILE 'NTIS'
         88820 MODIF?
         80297 ALTER?
        159790 INCREAS?
L18          8 L8 (6A)(MODIF? OR ALTER? OR INCREAS?)

FILE 'WPIDS'
        156309 MODIF?
        290760 ALTER?
        831973 INCREAS?
L19         22 L9 (6A)(MODIF? OR ALTER? OR INCREAS?)

TOTAL FOR ALL FILES
```

```
L20         538 L10(6A)(MODIF? OR ALTER? OR INCREAS?)

=> s (phosphoenolpyruvate or (phospho enol or phosphoenol)(w)pyruvate or
pep)(4a)(suppl#### or availab?)

FILE 'MEDLINE'
          5169 PHOSPHOENOLPYRUVATE
          2101 PHOSPHO
           498 ENOL
            54 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
           196 PHOSPHOENOL
         19380 PYRUVATE
          2219 PEP
        236685 SUPPL####
        173768 AVAILAB?
L21         18 (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOENOL)(W)PY
               RUVATE OR PEP)(4A)(SUPPL#### OR AVAILAB?)

FILE 'SCISEARCH'
          4271 PHOSPHOENOLPYRUVATE
          1536 PHOSPHO
          4857 ENOL
            54 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
           167 PHOSPHOENOL
         13358 PYRUVATE
          1695 PEP
         63705 SUPPL####
        172565 AVAILAB?
L22         24 (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOENOL)(W)PY
               RUVATE OR PEP)(4A)(SUPPL#### OR AVAILAB?)

FILE 'LIFESCI'
          1589 PHOSPHOENOLPYRUVATE
           769 "PHOSPHO"
           189 "ENOL"
            16 PHOSPHO ENOL
                 ("PHOSPHO"(W)"ENOL")
            99 PHOSPHOENOL
          4399 PYRUVATE
           619 PEP
         14912 SUPPL####
         53620 AVAILAB?
L23          9 (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOENOL)(W)PY
               RUVATE OR PEP)(4A)(SUPPL#### OR AVAILAB?)

FILE 'BIOTECHDS'
           266 PHOSPHOENOLPYRUVATE
           136 PHOSPHO
           113 ENOL
             2 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
            31 PHOSPHOENOL
          1220 PYRUVATE
           132 PEP
          5033 SUPPL####
          5198 AVAILAB?
L24          5 (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOENOL)(W)PY
               RUVATE OR PEP)(4A)(SUPPL#### OR AVAILAB?)

FILE 'BIOSIS'
          6288 PHOSPHOENOLPYRUVATE
         54820 PHOSPHO
          1711 ENOL
           145 PHOSPHO ENOL
```

```
                (PHOSPHO(W)ENOL)
          3575 PHOSPHOENOL
         29936 PYRUVATE
          3018 PEP
         74446 SUPPL####
        179662 AVAILAB?
L25         38 (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOENOL)(W)PY
               RUVATE OR PEP)(4A)(SUPPL#### OR AVAILAB?)

FILE 'EMBASE'
          3469 PHOSPHOENOLPYRUVATE
          1566 "PHOSPHO"
          1145 "ENOL"
            41 PHOSPHO ENOL
                 ("PHOSPHO"(W)"ENOL")
           149 PHOSPHOENOL
         15953 PYRUVATE
          2043 PEP
        340696 SUPPL####
        178079 AVAILAB?
L26         18 (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOENOL)(W)PY
               RUVATE OR PEP)(4A)(SUPPL#### OR AVAILAB?)

FILE 'HCAPLUS'
          8747 PHOSPHOENOLPYRUVATE
          5454 PHOSPHO
         12928 ENOL
            36 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
           460 PHOSPHOENOL
         34287 PYRUVATE
          4290 PEP
        128309 SUPPL####
        236609 AVAILAB?
L27         48 (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOENOL)(W)PY
               RUVATE OR PEP)(4A)(SUPPL#### OR AVAILAB?)

FILE 'NTIS'
            35 PHOSPHOENOLPYRUVATE
            43 PHOSPHO
            73 ENOL
             0 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
             5 PHOSPHOENOL
           294 PYRUVATE
          1108 PEP
         78924 SUPPL####
        218286 AVAILAB?
L28         15 (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOENOL)(W)PY
               RUVATE OR PEP)(4A)(SUPPL#### OR AVAILAB?)

FILE 'WPIDS'
            63 PHOSPHOENOLPYRUVATE
          3016 PHOSPHO
          1332 ENOL
            75 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
            75 PHOSPHOENOL
           914 PYRUVATE
           218 PEP
        643518 SUPPL####
         65125 AVAILAB?
L29          1 (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOENOL)(W)PY
               RUVATE OR PEP)(4A)(SUPPL#### OR AVAILAB?)

TOTAL FOR ALL FILES
```

```
L30         176 (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOENOL)(W)
                PYRUVATE OR PEP)(4A)(SUPPL#### OR AVAILAB?)

=> s phosphotransferase# or phospho transferase#

FILE 'MEDLINE'
          15577 PHOSPHOTRANSFERASE#
           2101 PHOSPHO
          28809 TRANSFERASE#
             12 PHOSPHO TRANSFERASE#
                  (PHOSPHO(W)TRANSFERASE#)
L31       15584 PHOSPHOTRANSFERASE# OR PHOSPHO TRANSFERASE#

FILE 'SCISEARCH'
           3321 PHOSPHOTRANSFERASE#
           1536 PHOSPHO
          22534 TRANSFERASE#
             11 PHOSPHO TRANSFERASE#
                  (PHOSPHO(W)TRANSFERASE#)
L32        3330 PHOSPHOTRANSFERASE# OR PHOSPHO TRANSFERASE#

FILE 'LIFESCI'
           2121 PHOSPHOTRANSFERASE#
            769 "PHOSPHO"
           8209 TRANSFERASE#
              6 PHOSPHO TRANSFERASE#
                  ("PHOSPHO"(W)TRANSFERASE#)
L33        2124 PHOSPHOTRANSFERASE# OR PHOSPHO TRANSFERASE#

FILE 'BIOTECHDS'
           1522 PHOSPHOTRANSFERASE#
            136 PHOSPHO
           1289 TRANSFERASE#
              0 PHOSPHO TRANSFERASE#
                  (PHOSPHO(W)TRANSFERASE#)
L34        1522 PHOSPHOTRANSFERASE# OR PHOSPHO TRANSFERASE#

FILE 'BIOSIS'
           4870 PHOSPHOTRANSFERASE#
          54820 PHOSPHO
          53895 TRANSFERASE#
           1749 PHOSPHO TRANSFERASE#
                  (PHOSPHO(W)TRANSFERASE#)
L35        5980 PHOSPHOTRANSFERASE# OR PHOSPHO TRANSFERASE#

FILE 'EMBASE'
           5589 PHOSPHOTRANSFERASE#
           1566 "PHOSPHO"
          24818 TRANSFERASE#
              6 PHOSPHO TRANSFERASE#
                  ("PHOSPHO"(W)TRANSFERASE#)
L36        5594 PHOSPHOTRANSFERASE# OR PHOSPHO TRANSFERASE#

FILE 'HCAPLUS'
           5758 PHOSPHOTRANSFERASE#
           5454 PHOSPHO
          28406 TRANSFERASE#
              7 PHOSPHO TRANSFERASE#
                  (PHOSPHO(W)TRANSFERASE#)
L37        5764 PHOSPHOTRANSFERASE# OR PHOSPHO TRANSFERASE#

FILE 'NTIS'
            123 PHOSPHOTRANSFERASE#
             43 PHOSPHO
            626 TRANSFERASE#
              0 PHOSPHO TRANSFERASE#
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```
                    (PHOSPHO(W)TRANSFERASE#)
L38          123 PHOSPHOTRANSFERASE# OR PHOSPHO TRANSFERASE#

FILE 'WPIDS'
              97 PHOSPHOTRANSFERASE#
            3016 PHOSPHO
            2131 TRANSFERASE#
              13 PHOSPHO TRANSFERASE#
                    (PHOSPHO(W)TRANSFERASE#)
L39          101 PHOSPHOTRANSFERASE# OR PHOSPHO TRANSFERASE#

TOTAL FOR ALL FILES
L40        40122 PHOSPHOTRANSFERASE# OR PHOSPHO TRANSFERASE#

=> s l40 and l10

FILE 'MEDLINE'
L41           12 L31 AND L1

FILE 'SCISEARCH'
L42           15 L32 AND L2

FILE 'LIFESCI'
L43            6 L33 AND L3

FILE 'BIOTECHDS'
L44            4 L34 AND L4

FILE 'BIOSIS'
L45            9 L35 AND L5

FILE 'EMBASE'
L46            6 L36 AND L6

FILE 'HCAPLUS'
L47            9 L37 AND L7

FILE 'NTIS'
L48            1 L38 AND L8

FILE 'WPIDS'
L49            1 L39 AND L9

TOTAL FOR ALL FILES
L50           63 L40 AND L10

=> s l40(8a)(delet? or inactivat?)

FILE 'MEDLINE'
           72017 DELET?
           66880 INACTIVAT?
L51           98 L31(8A)(DELET? OR INACTIVAT?)

FILE 'SCISEARCH'
           55728 DELET?
           48062 INACTIVAT?
L52           42 L32(8A)(DELET? OR INACTIVAT?)

FILE 'LIFESCI'
           32729 DELET?
           25087 INACTIVAT?
L53           58 L33(8A)(DELET? OR INACTIVAT?)

FILE 'BIOTECHDS'
            6088 DELET?
            5019 INACTIVAT?
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```
L54          39 L34(8A)(DELET? OR INACTIVAT?)

FILE 'BIOSIS'
          70400 DELET?
          76461 INACTIVAT?
L55         102 L35(8A)(DELET? OR INACTIVAT?)

FILE 'EMBASE'
          60511 DELET?
          59520 INACTIVAT?
L56          68 L36(8A)(DELET? OR INACTIVAT?)

FILE 'HCAPLUS'
          65728 DELET?
          86906 INACTIVAT?
L57         128 L37(8A)(DELET? OR INACTIVAT?)

FILE 'NTIS'
           3879 DELET?
           1849 INACTIVAT?
L58           0 L38(8A)(DELET? OR INACTIVAT?)

FILE 'WPIDS'
           9742 DELET?
           7129 INACTIVAT?
L59           3 L39(8A)(DELET? OR INACTIVAT?)

TOTAL FOR ALL FILES
L60         538 L40(8A)(DELET? OR INACTIVAT?)

=> s 160 and transport?

FILE 'MEDLINE'
         177395 TRANSPORT?
L61           9 L51 AND TRANSPORT?

FILE 'SCISEARCH'
         235748 TRANSPORT?
L62           1 L52 AND TRANSPORT?

FILE 'LIFESCI'
          48452 TRANSPORT?
L63           2 L53 AND TRANSPORT?

FILE 'BIOTECHDS'
           2913 TRANSPORT?
L64           1 L54 AND TRANSPORT?

FILE 'BIOSIS'
         200165 TRANSPORT?
L65          10 L55 AND TRANSPORT?

FILE 'EMBASE'
         171653 TRANSPORT?
L66           9 L56 AND TRANSPORT?

FILE 'HCAPLUS'
         438697 TRANSPORT?
L67          16 L57 AND TRANSPORT?

FILE 'NTIS'
         120741 TRANSPORT?
L68           0 L58 AND TRANSPORT?

FILE 'WPIDS'
         190827 TRANSPORT?
```

```
L69          0 L59 AND TRANSPORT?

TOTAL FOR ALL FILES
L70         48 L60 AND TRANSPORT?

=> s l40 and glucose

FILE 'MEDLINE'
        190277 GLUCOSE
L71       1906 L31 AND GLUCOSE

FILE 'SCISEARCH'
        111626 GLUCOSE
L72        567 L32 AND GLUCOSE

FILE 'LIFESCI'
         30112 GLUCOSE
L73        363 L33 AND GLUCOSE

FILE 'BIOTECHDS'
         22953 GLUCOSE
L74         72 L34 AND GLUCOSE

FILE 'BIOSIS'
        200859 GLUCOSE
L75        985 L35 AND GLUCOSE

FILE 'EMBASE'
        153704 GLUCOSE
L76        735 L36 AND GLUCOSE

FILE 'HCAPLUS'
        227434 GLUCOSE
L77       1086 L37 AND GLUCOSE

FILE 'NTIS'
          2740 GLUCOSE
L78          8 L38 AND GLUCOSE

FILE 'WPIDS'
         18811 GLUCOSE
L79          9 L39 AND GLUCOSE

TOTAL FOR ALL FILES
L80       5731 L40 AND GLUCOSE

=> s l60 and l80

FILE 'MEDLINE'
L81         15 L51 AND L71

FILE 'SCISEARCH'
L82          4 L52 AND L72

FILE 'LIFESCI'
L83          5 L53 AND L73

FILE 'BIOTECHDS'
L84          4 L54 AND L74

FILE 'BIOSIS'
L85         14 L55 AND L75

FILE 'EMBASE'
L86         14 L56 AND L76
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FILE 'HCAPLUS'
L87          17 L57 AND L77

FILE 'NTIS'
L88           0 L58 AND L78

FILE 'WPIDS'
L89           1 L59 AND L79

TOTAL FOR ALL FILES
L90          74 L60 AND L80

=> s 180 and transport

FILE 'MEDLINE'
         151525 TRANSPORT
L91         549 L71 AND TRANSPORT

FILE 'SCISEARCH'
         210963 TRANSPORT
L92         248 L72 AND TRANSPORT

FILE 'LIFESCI'
          39907 TRANSPORT
L93         143 L73 AND TRANSPORT

FILE 'BIOTECHDS'
           2282 TRANSPORT
L94          12 L74 AND TRANSPORT

FILE 'BIOSIS'
         176263 TRANSPORT
L95         325 L75 AND TRANSPORT

FILE 'EMBASE'
         156299 TRANSPORT
L96         323 L76 AND TRANSPORT

FILE 'HCAPLUS'
         396662 TRANSPORT
L97         442 L77 AND TRANSPORT

FILE 'NTIS'
          71256 TRANSPORT
L98           3 L78 AND TRANSPORT

FILE 'WPIDS'
         126779 TRANSPORT
L99           1 L79 AND TRANSPORT

TOTAL FOR ALL FILES
L100       2046 L80 AND TRANSPORT

=> s 1100 and (phosphoenolpyruvate or (phospho enol or
phosphoenol)(w)pyruvate or pep)

FILE 'MEDLINE'
           5169 PHOSPHOENOLPYRUVATE
           2101 PHOSPHO
            498 ENOL
             54 PHOSPHO ENOL
                  (PHOSPHO(W)ENOL)
            196 PHOSPHOENOL
          19380 PYRUVATE
            220 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
           2219 PEP
```

```
L101       280 L91 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
               OL)(W)PYRUVATE OR PEP)

FILE 'SCISEARCH'
          4271 PHOSPHOENOLPYRUVATE
          1536 PHOSPHO
          4857 ENOL
            54 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
           167 PHOSPHOENOL
         13358 PYRUVATE
           206 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
          1695 PEP
L102       167 L92 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
               OL)(W)PYRUVATE OR PEP)

FILE 'LIFESCI'
          1589 PHOSPHOENOLPYRUVATE
           769 "PHOSPHO"
           189 "ENOL"
            16 PHOSPHO ENOL
                 ("PHOSPHO"(W)"ENOL")
            99 PHOSPHOENOL
          4399 PYRUVATE
           105 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
           619 PEP
L103       103 L93 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
               OL)(W)PYRUVATE OR PEP)

FILE 'BIOTECHDS'
           266 PHOSPHOENOLPYRUVATE
           136 PHOSPHO
           113 ENOL
             2 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
            31 PHOSPHOENOL
          1220 PYRUVATE
            30 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
           132 PEP
L104         7 L94 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
               OL)(W)PYRUVATE OR PEP)

FILE 'BIOSIS'
          6288 PHOSPHOENOLPYRUVATE
         54820 PHOSPHO
          1711 ENOL
           145 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
          3575 PHOSPHOENOL
         29936 PYRUVATE
          3660 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
          3018 PEP
L105       216 L95 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
               OL)(W)PYRUVATE OR PEP)

FILE 'EMBASE'
          3469 PHOSPHOENOLPYRUVATE
          1566 "PHOSPHO"
          1145 "ENOL"
            41 PHOSPHO ENOL
                 ("PHOSPHO"(W)"ENOL")
           149 PHOSPHOENOL
         15953 PYRUVATE
           175 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
          2043 PEP
L106       206 L96 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
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```
               OL)(W)PYRUVATE OR PEP)

FILE 'HCAPLUS'
          8747 PHOSPHOENOLPYRUVATE
          5454 PHOSPHO
         12928 ENOL
            36 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
           460 PHOSPHOENOL
         34287 PYRUVATE
           433 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
          4290 PEP
L107       327 L97 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
               OL)(W)PYRUVATE OR PEP)

FILE 'NTIS'
            35 PHOSPHOENOLPYRUVATE
            43 PHOSPHO
            73 ENOL
             0 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
             5 PHOSPHOENOL
           294 PYRUVATE
             3 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
          1108 PEP
L108         3 L98 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
               OL)(W)PYRUVATE OR PEP)

FILE 'WPIDS'
            63 PHOSPHOENOLPYRUVATE
          3016 PHOSPHO
          1332 ENOL
            75 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
            75 PHOSPHOENOL
           914 PYRUVATE
            84 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
           218 PEP
L109         1 L99 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
               OL)(W)PYRUVATE OR PEP)

TOTAL FOR ALL FILES
L110      1310 L100 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOE
               NOL)(W) PYRUVATE OR PEP)

=> s l110 and mut/q

FILE 'MEDLINE'
L111       174 L101 AND MUT/Q

FILE 'SCISEARCH'
L112        96 L102 AND MUT/Q

FILE 'LIFESCI'
L113        53 L103 AND MUT/Q

FILE 'BIOTECHDS'
L114         5 L104 AND MUT/Q

FILE 'BIOSIS'
L115       118 L105 AND MUT/Q

FILE 'EMBASE'
L116       111 L106 AND MUT/Q

FILE 'HCAPLUS'
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```
L117          164 L107 AND MUT/Q

FILE 'NTIS'
L118            2 L108 AND MUT/Q

FILE 'WPIDS'
L119            1 L109 AND MUT/Q

TOTAL FOR ALL FILES
L120          724 L110 AND MUT/Q

=> s l120 and (aromatic or shikimate)

FILE 'MEDLINE'
           17587 AROMATIC
             254 SHIKIMATE
L121           2 L111 AND (AROMATIC OR SHIKIMATE)

FILE 'SCISEARCH'
           57379 AROMATIC
             538 SHIKIMATE
L122           2 L112 AND (AROMATIC OR SHIKIMATE)

FILE 'LIFESCI'
            9106 AROMATIC
             204 SHIKIMATE
L123           2 L113 AND (AROMATIC OR SHIKIMATE)

FILE 'BIOTECHDS'
            3662 AROMATIC
              79 SHIKIMATE
L124           1 L114 AND (AROMATIC OR SHIKIMATE)

FILE 'BIOSIS'
           33201 AROMATIC
             881 SHIKIMATE
L125           2 L115 AND (AROMATIC OR SHIKIMATE)

FILE 'EMBASE'
           27275 AROMATIC
             213 SHIKIMATE
L126           2 L116 AND (AROMATIC OR SHIKIMATE)

FILE 'HCAPLUS'
          116915 AROMATIC
          201631 AROM
          248886 AROMATIC
                   (AROMATIC OR AROM)
            1275 SHIKIMATE
L127           3 L117 AND (AROMATIC OR SHIKIMATE)

FILE 'NTIS'
           10680 AROMATIC
               8 SHIKIMATE
L128           0 L118 AND (AROMATIC OR SHIKIMATE)

FILE 'WPIDS'
          134084 AROMATIC
            1737 AROM
          135231 AROMATIC
                   (AROMATIC OR AROM)
              27 SHIKIMATE
L129           1 L119 AND (AROMATIC OR SHIKIMATE)

TOTAL FOR ALL FILES
L130          15 L120 AND (AROMATIC OR SHIKIMATE)
```

```
=> s l20 and (phosphoenolpyruvate or (phospho enol or phosphoenol)(w)pyruvate
or pep)

FILE 'MEDLINE'
          5169 PHOSPHOENOLPYRUVATE
          2101 PHOSPHO
           498 ENOL
            54 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
           196 PHOSPHOENOL
         19380 PYRUVATE
           220 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
          2219 PEP
L131         5 L11 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
               OL)(W)PYRUVATE OR PEP)

FILE 'SCISEARCH'
          4271 PHOSPHOENOLPYRUVATE
          1536 PHOSPHO
          4857 ENOL
            54 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
           167 PHOSPHOENOL
         13358 PYRUVATE
           206 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
          1695 PEP
L132         8 L12 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
               OL)(W)PYRUVATE OR PEP)

FILE 'LIFESCI'
          1589 PHOSPHOENOLPYRUVATE
           769 "PHOSPHO"
           189 "ENOL"
            16 PHOSPHO ENOL
                 ("PHOSPHO"(W)"ENOL")
            99 PHOSPHOENOL
          4399 PYRUVATE
           105 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
           619 PEP
L133         8 L13 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
               OL)(W)PYRUVATE OR PEP)

FILE 'BIOTECHDS'
           266 PHOSPHOENOLPYRUVATE
           136 PHOSPHO
           113 ENOL
             2 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
            31 PHOSPHOENOL
          1220 PYRUVATE
            30 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
           132 PEP
L134         4 L14 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
               OL)(W)PYRUVATE OR PEP)

FILE 'BIOSIS'
          6288 PHOSPHOENOLPYRUVATE
         54820 PHOSPHO
          1711 ENOL
           145 PHOSPHO ENOL
                 (PHOSPHO(W)ENOL)
          3575 PHOSPHOENOL
         29936 PYRUVATE
          3660 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
          3018 PEP
```

```
L135          12 L15 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
                 OL)(W)PYRUVATE OR PEP)

FILE 'EMBASE'
            3469 PHOSPHOENOLPYRUVATE
            1566 "PHOSPHO"
            1145 "ENOL"
              41 PHOSPHO ENOL
                   ("PHOSPHO"(W)"ENOL")
             149 PHOSPHOENOL
           15953 PYRUVATE
             175 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
            2043 PEP
L136           6 L16 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
                 OL)(W)PYRUVATE OR PEP)

FILE 'HCAPLUS'
            8747 PHOSPHOENOLPYRUVATE
            5454 PHOSPHO
           12928 ENOL
              36 PHOSPHO ENOL
                   (PHOSPHO(W)ENOL)
             460 PHOSPHOENOL
           34287 PYRUVATE
             433 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
            4290 PEP
L137          12 L17 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
                 OL)(W)PYRUVATE OR PEP)

FILE 'NTIS'
              35 PHOSPHOENOLPYRUVATE
              43 PHOSPHO
              73 ENOL
               0 PHOSPHO ENOL
                   (PHOSPHO(W)ENOL)
               5 PHOSPHOENOL
             294 PYRUVATE
               3 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
            1108 PEP
L138           0 L18 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
                 OL)(W)PYRUVATE OR PEP)

FILE 'WPIDS'
              63 PHOSPHOENOLPYRUVATE
            3016 PHOSPHO
            1332 ENOL
              75 PHOSPHO ENOL
                   (PHOSPHO(W)ENOL)
              75 PHOSPHOENOL
             914 PYRUVATE
              84 (PHOSPHO ENOL OR PHOSPHOENOL)(W)PYRUVATE
             218 PEP
L139           2 L19 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
                 OL)(W)PYRUVATE OR PEP)

TOTAL FOR ALL FILES
L140          57 L20 AND (PHOSPHOENOLPYRUVATE OR (PHOSPHO ENOL OR PHOSPHOEN
                 OL)(W) PYRUVATE OR PEP)

=> s 120 and glucose

FILE 'MEDLINE'
          190277 GLUCOSE
L141          19 L11 AND GLUCOSE

FILE 'SCISEARCH'
```

```
        111626 GLUCOSE
L142        16 L12 AND GLUCOSE

FILE 'LIFESCI'
         30112 GLUCOSE
L143        10 L13 AND GLUCOSE

FILE 'BIOTECHDS'
         22953 GLUCOSE
L144        11 L14 AND GLUCOSE

FILE 'BIOSIS'
        200859 GLUCOSE
L145        26 L15 AND GLUCOSE

FILE 'EMBASE'
        153704 GLUCOSE
L146        25 L16 AND GLUCOSE

FILE 'HCAPLUS'
        227434 GLUCOSE
L147        21 L17 AND GLUCOSE

FILE 'NTIS'
          2740 GLUCOSE
L148         0 L18 AND GLUCOSE

FILE 'WPIDS'
         18811 GLUCOSE
L149         2 L19 AND GLUCOSE

TOTAL FOR ALL FILES
L150       130 L20 AND GLUCOSE

=> s (l30 or l50 or l70 or l90 or l120 or l130 or l140 or l150) and py=<1995
range=1997,

FILE 'MEDLINE'
         16152 PY=<1995
L151         0 (L21 OR L41 OR L61 OR L81 OR L111 OR L121 OR L131 OR L141)
                AND PY=<1995

FILE 'SCISEARCH'
           525 PY=<1995
L152         0 (L22 OR L42 OR L62 OR L82 OR L112 OR L122 OR L132 OR L142)
                AND PY=<1995

FILE 'LIFESCI'
         12646 PY=<1995
L153         2 (L23 OR L43 OR L63 OR L83 OR L113 OR L123 OR L133 OR L143)
                AND PY=<1995

FILE 'BIOTECHDS'
           233 PY=<1995
                 (PY=<1995)
L154         0 (L24 OR L44 OR L64 OR L84 OR L114 OR L124 OR L134 OR L144)
                AND PY=<1995

FILE 'BIOSIS'
          6505 PY=<1995
L155         0 (L25 OR L45 OR L65 OR L85 OR L115 OR L125 OR L135 OR L145)
                AND PY=<1995

FILE 'EMBASE'
           580 PY=<1995
L156         0 (L26 OR L46 OR L66 OR L86 OR L116 OR L126 OR L136 OR L146)
```

```
                    AND PY=<1995

FILE 'HCAPLUS'
          25313 PY=<1995
L157          0 (L27 OR L47 OR L67 OR L87 OR L117 OR L127 OR L137 OR L147)
                    AND PY=<1995

FILE 'NTIS'
          40991 PY=<1995
L158          0 (L28 OR L48 OR L68 OR L88 OR L118 OR L128 OR L138 OR L148)
                    AND PY=<1995

FILE 'WPIDS'
          22041 PY=<1995
                      (PY=<1995)
L159          0 (L29 OR L49 OR L69 OR L89 OR L119 OR L129 OR L139 OR L149)
                    AND PY=<1995

TOTAL FOR ALL FILES
L160          2 (L30 OR L50 OR L70 OR L90 OR L120 OR L130 OR L140 OR L150)
                    AND PY=<1995

=> d 1-2


L160 ANSWER 1 OF 2  LIFESCI    COPYRIGHT 1998 CSA
TI   The influence of ozone and nutrition on  delta  super(13)C in Betula
     pendula
SO   OECOLOGIA, (1995) vol. 103, no. 4, pp. 397-406.
     ISSN: 0029-8549.
AU   Saurer, M.; Maurer, S.; Matyssek, R.*; Landolt, W.;
     Guenthardt-Goerg, M.S.; Siegenthaler, U.
AN   97:18770  LIFESCI

L160 ANSWER 2 OF 2  LIFESCI    COPYRIGHT 1998 CSA
TI   Inorganic phosphate (Pi) enhancement of dark respiration in the
     Pi-limited green alga Selenastrum minutum. Interactions between H
     super(+)/Pi cotransport, the plasmalemma H super(+)-ATPase, and dark
     respiratory carbon flow
SO   PLANT PHYSIOL., (1994) vol. 104, no. 2, pp. 624-637.
     ISSN: 0032-0889.
AU   Gauthier, D.A.; Turpin, D.H.*
AN   97:7446  LIFESCI

=> log y

COST IN U.S. DOLLARS                              SINCE FILE      TOTAL
                                                       ENTRY    SESSION
FULL ESTIMATED COST                                    45.67      45.82

STN INTERNATIONAL LOGOFF AT 10:18:03 ON 17 SEP 1998
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FILE 'USPAT' ENTERED AT 09:13:53 ON 17 SEP 1998

  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *
  *              W E L C O M E   T O   T H E                      *
  *        U. S.   P A T E N T   T E X T   F I L E                *
  * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * * *

=> s carbon(2a)(flux or flow)

        410093 CARBON
         76264 FLUX
        801693 FLOW
L1        2328 CARBON(2A)(FLUX OR FLOW)

=> s l1(6a)(modif? or alter? or increas?)

       1233515 MODIF?
       1131532 ALTER?
       1317379 INCREAS?
L2          97 L1(6A)(MODIF? OR ALTER? OR INCREAS?)

=> s (phosphoenol pyruvate or pep or phosphoenolpyruvate or phospho enol
pyruvate)(4a)(suppl#### or availab?)

           165 PHOSPHOENOL
          4741 PYRUVATE
           150 PHOSPHOENOL PYRUVATE
                 (PHOSPHOENOL(W)PYRUVATE)
          1623 PEP
           248 PHOSPHOENOLPYRUVATE
          2774 PHOSPHO
          4918 ENOL
          4741 PYRUVATE
            22 PHOSPHO ENOL PYRUVATE
                 (PHOSPHO(W)ENOL(W)PYRUVATE)
        858671 SUPPL####
        780737 AVAILAB?
L3          87 (PHOSPHOENOL PYRUVATE OR PEP OR PHOSPHOENOLPYRUVATE OR PHOS
PHO
                ENOL PYRUVATE)(4A)(SUPPL#### OR AVAILAB?)

=> s l2 and l3

L4           0 L2 AND L3

=> s phosphotransferase# or phospho transferase#

          1128 PHOSPHOTRANSFERASE#
          2774 PHOSPHO
          5089 TRANSFERASE#
            13 PHOSPHO TRANSFERASE#
                 (PHOSPHO(W)TRANSFERASE#)
L5        1139 PHOSPHOTRANSFERASE# OR PHOSPHO TRANSFERASE#

=> s (l2 or l3)(p)l5

L6           1 (L2 OR L3)(P)L5

=> s (l2 or l3) and l5

L7           2 (L2 OR L3) AND L5

=> d cit,ab,kwic
```

1. 5,776,736, Jul. 7, 1998, Deblocking the common pathway of aromatic amino acid synthesis; John W. Frost, et al., 435/108, 252.33, 320.1; 536/23.2, 23.7 [IMAGE AVAILABLE]

US PAT NO: 5,776,736 [IMAGE AVAILABLE] L7: 1 of 2

ABSTRACT:
Enhanced efficiency of production of aromatic compounds via the common pathway, as shown in FIG. 1, of a host cell is realized by increasing the expression of enzyme species acting on substrate intermediates in identified rate-limiting reaction steps in the pathway. Prokaryotic cell transformants are described comprising exogenous DNA sequences encoding for the enzymes species, 3-dehydroquinate synthase, shikimate kinase, 5-enolpyruvoyl-shikimate-3-phosphate synthase and chorismate synthase. These transformants can be further transformed with exogenous DNA sequences encoding the enzyme species transketolase and DAHP synthase. In one embodiment of the present invention, one or more of the DNA sequences encoding the enzyme species are incorporated into the genome of the transformant.

SUMMARY:

BSUM(6)

Earlier . . . 8, 1991, the disclosure of which is expressly incorporated herein by reference. That patent describes a related invention directed to **increasing** the **carbon** **flow** into the pathway by **increasing** the in vivo catalytic activity of 3-deoxy-D-arabino-heptulosonate-7-phosphate synthase and transketolase. While the aforementioned patent teaches **increasing** **carbon** **flow** into the common pathway, it has been found that **increased** **carbon** **flow** directed into the common pathway is lost if there are one or more pathway enzymes that are not able to. . .

DETDESC:

DETD(12)

Although a tyrR mutation does **increase** levels of **carbon** **flow** through the common pathway by enhancing the expression of shikimate kinase, the effect of the tyrR mutation on other aspects. . . plasmids containing aroF is of concern given that amplified expression of DAHP synthase, encoded by this locus, is essential to **increasing** the **carbon** **flow** directed into the common pathway.

DETDESC:

DETD(14)

Other . . . common pathway. Thus applicants' invention is an improvement of their earlier work described in U.S. Pat. No. 5,186,056 which discloses **increasing** **carbon** **flow** into the common pathway by overexpressing the enzymes transketolase and 3-deoxy-D-arabino-heptulosonate-7-phosphate synthase. As disclosed in the present application, the **increased** **carbon** **flow** directed into the common pathway by the overexpression of transketolase and DAHP synthase is lost unless the rate-limiting steps of. . .

DETDESC:

DETD(16)

As . . . the efficiency of production of aromatic compounds in host cells via the common pathway. While earlier reports have taught that **carbon** **flow** can be **increased** into the upper end (the initial reaction sequences) of the pathway by enhancing the concentrations of

transketolase alone or in. . . rate limiting steps of the common pathway. Applicants have accomplished the removal of the rate limiting steps, and thus have **increased** the efficiency of **carbon** **flow** through the entire pathway, by transforming the host cell with exogenous DNA sequences encoding the rate-limiting enzyme species 3-dehydroquinate synthase. . .

DETDESC:

DETD(26)

The . . . production of phenylalanine and phenyllactate was reduced to 2.1.+-.0.9 mM after 48 hours of growth (FIG. 3) implying that the **increased** **carbon** **flow** from deblocking at aroE did not result in the additional accumulation of end products.

DETDESC:

DETD(38)

Both . . . system in E. coli. In the two plasmid system, plasmid pKD136 or a functional equivalent is essential to committing an **increased** **flow** of **carbon** to the common pathway of aromatic amino acid biosynthesis while the plasmid pKAD50 or its functional equivalent is essential to. . .

DETDESC:

DETD(46)

A . . . chosen as the external promoter to ensure sufficient transcription of aroA which lacks a native promoter. The gene encoding aminoglycoside 3'-**phosphotransferase**, conferring resistance to kanamycin, was chosen as the selectable drug marker for insertion of the synthetic cassette into the genome.. . .

DETDESC:

DETD(97)

Plasmid pMB2190 was used as the source of the marker gene expressing aminoglycoside 3'-**phosphotransferase** (kan), conferring resistance to kanamycin. Because plasmid pMB2190 contains kan on a Pst I fragment, a number of steps were. . .

```
=> s (12 or 13)(p)(aromatic or shikimate)

        175010 AROMATIC
            76 SHIKIMATE
L8           9 (L2 OR L3)(P)(AROMATIC OR SHIKIMATE)

=> d cit,ab,kwic 1-5
```

1. 5,798,236, Aug. 25, 1998, Synthesis of quinic acid from glucose; John W. Frost, et al., 435/136, 69.1, 132, 133, 232, 252.3, 252.33, 320.1; 536/23.1, 23.2 [IMAGE AVAILABLE]

US PAT NO: 5,798,236 [IMAGE AVAILABLE] L8: 1 of 9

ABSTRACT:
There are described methods for the synthesis of quinoid organic compounds from a renewable energy source such as glucose. The method comprises enhancing the amount of glucose equivalents introduced into the pathway, blocking the common pathway so as to accumulate dehydroquinate and converting the dehydroquinate to quinic acid.

DETDESC:

DETD(9)

Building on successful efforts to **increase** the **flow** of **carbon** committed to the common pathway or **aromatic** amino acid biosynthesis in host cells (Escherichia coli), it was thought that introduction of a gene encoding quinate dehydrogenase into Escherichia coli might result in the generation of quinic acid from the **shikimate** pathway intermediate dehydroquinate. This expectation was based on the equilibrium (Davis, B. D.; Gilvarg, C.; Mitsuhashi, S.; Meth. Enzymol.; 1955;. . .

DETDESC:

DETD(10)

Plasmid pKD136 has been shown to significantly **increase** the number of glucose equivalents (**carbon** **flow**) committed to the **aromatic** amino acid biosynthetic pathway. This plasmid contains the transketolase encoding tkt gene (Draths, K. M., Frost, J. W., J. Am.. . . K. M., Frost, J. W., J. Am. Chem. Soc., 1990, 112:9630). These enzymes catalyze transformations in the common pathway for **aromatic** amino acid biosynthesis (FIG. 1).

2. 5,776,736, Jul. 7, 1998, Deblocking the common pathway of aromatic amino acid synthesis; John W. Frost, et al., 435/108, 252.33, 320.1; 536/23.2, 23.7 [IMAGE AVAILABLE]

US PAT NO: 5,776,736 [IMAGE AVAILABLE] L8: 2 of 9

ABSTRACT:
Enhanced efficiency of production of aromatic compounds via the common pathway, as shown in FIG. 1, of a host cell is realized by increasing the expression of enzyme species acting on substrate intermediates in identified rate-limiting reaction steps in the pathway. Prokaryotic cell transformants are described comprising exogenous DNA sequences encoding for the enzymes species, 3-dehydroquinate synthase, shikimate kinase, 5-enolpyruvoyl-shikimate-3-phosphate synthase and chorismate synthase. These transformants can be further transformed with exogenous DNA sequences encoding the enzyme species transketolase and DAHP synthase. In one embodiment of the present invention, one or more of the DNA sequences encoding the enzyme species are incorporated into the genome of the transformant.

SUMMARY:

BSUM(6)

Earlier approaches for increasing efficiency of production of the common pathway of **aromatic** biosynthesis have been described in U.S. Pat. No. 5,186,056, issuing Dec. 1, 1992, on U.S. application Ser. No. 07/652,933, filed. . . 8, 1991, the disclosure of which is expressly incorporated herein by reference. That patent describes a related invention directed to **increasing** the **carbon** **flow** into the pathway by **increasing** the in vivo catalytic activity of 3-deoxy-D-arabino-heptulosonate-7-phosphate synthase and transketolase. While the aforementioned patent teaches **increasing** **carbon** **flow** into the common pathway, it has been found that **increased** **carbon** **flow** directed into the common pathway is lost if there are one or more pathway enzymes that are not able to. . .

DETDESC:

DETD(12)

Although a tyrR mutation does **increase** levels of **carbon** **flow** through the common pathway by enhancing the expression of **shikimate** kinase, the effect of the tyrR mutation on other aspects of the cell's metabolic processes must be evaluated. In addition to the aroL aroM operon, eight other transcriptional units involved in either **aromatic** amino acid biosynthesis or transport are controlled by the tyrR regulon. The aroF tyrA transcriptional unit, encoding the tyrosine-sensitive isozyme. . . the presence of tyrosine and phenylalanine, respectively. In addition, the tyrR regulon regulates the transcription of tyrB, which encodes the **aromatic** amino transferase, aroP, encoding an enzyme involved in general **aromatic** transport, and tyrR, encoding the TyrR repressor protein. An additional concern arises from reports that the tyrosine operon, aroF tyrA,. . . plasmids containing aroF is of concern given that amplified expression of DAHP synthase, encoded by this locus, is essential to **increasing** the **carbon** **flow** directed into the common pathway.

DETDESC:

DETD(14)

Other . . . invention include cell transformants prepared in accordance with this invention and a method utilizing such cell transformants to produce an **aromatic** compound biocatalytically from a carbon source. The method comprises the step of culturing a prokaryote cell transformant in media containing. . . transformant comprising exogenous DNA sequences encoding common pathway enzyme species, said enzyme species consisting essentially of the enzymes 3-dehydroquinate synthase, **shikimate** kinase, 5-enolpyruvoylshikimate-3-phosphate synthase and chorismate synthase. The cell transformant is cultured under conditions conducive to the assimilation of the carbon. . . common pathway. Thus applicants' invention is an improvement of their earlier work described in U.S. Pat. No. 5,186,056 which discloses **increasing** **carbon** **flow** into the common pathway by overexpressing the enzymes transketolase and 3-deoxy-D-arabino-heptulosonate-7-phosphate synthase. As disclosed in the present application, the **increased** **carbon** **flow** directed into the common pathway by the overexpression of transketolase and DAHP synthase is lost unless the rate-limiting steps of. . . elimination of these rate-limiting steps by enhancing the expression of common pathway enzymes consisting essentially of the enzymes 3-dehydroquinate synthase, **shikimate** kinase, 5-enolpyruvoylshikimate-3-phosphate synthase and chorismate synthase.

DETDESC:

DETD(16)

As . . . of proteins catalyzing reactions in that pathway. The present invention provides for significant improvement in the efficiency of production of **aromatic** compounds in host cells via the common pathway. While earlier reports have taught that **carbon** **flow** can be **increased** into the upper end (the initial reaction sequences) of the pathway by enhancing the concentrations of transketolase alone or in combination with other enzymes in the common pathway, for example, DAHP synthase, DHQ synthase and even **shikimate** kinase, these references failed to teach or suggest the identification and removal of all the rate limiting steps of the common pathway. Applicants have accomplished the removal of the rate limiting steps, and thus have **increased** the efficiency of **carbon** **flow** through the entire pathway, by transforming the host cell with exogenous DNA sequences encoding the rate-limiting enzyme species 3-dehydroquinate synthase (DHQ synthase), **shikimate** kinase, 5-enolpyruvoylshikimate-3-phosphate synthase, and chorismate synthase to increase expression of those enzymes in the host cell.

DETDESC:

DETD(26)

The . . . FIG. 4. D2704/pKD136/pKD28 while reducing the level of DHS accumulation did not completely remove the intermediate from the culture supernatant. **Shikimate** and **shikimate**-3-phosphate were still present in the culture broth. The total production of phenylalanine and phenyllactate was reduced to 2.1.+-.0.9 mM after 48 hours of growth (FIG. 3) implying that the **increased** **carbon** **flow** from deblocking at aroE did not result in the additional accumulation of end products.

DETDESC:

DETD(38)

Both the yield and purity of the **aromatic** amino acids and their derivatives produced by biocatalytic processes can be increased by the use of plasmid pAB18B or by. . . system in E. coli. In the two plasmid system, plasmid pKD136 or a functional equivalent is essential to committing an **increased** **flow** of **carbon** to the common pathway of **aromatic** amino acid biosynthesis while the plasmid pKAD50 or its functional equivalent is essential to successfully direct the surge of carbon. . . are readily discernible in the NMRs of D2704/pKD130A and D2704/pKD136/pKAD50. A summary of the data showing applicants successful enhancement of **aromatic** amino acid production by the common pathway is presented in Table 1.

3. 5,658,984, Aug. 19, 1997, Permanent anti-static polycarbonate resin composition; Kazuhiko Ishii, et al., 525/66; 524/504, 505, 514, 522; 525/63, 89, 90, 92A, 133, 148, 179 [IMAGE AVAILABLE]

US PAT NO: 5,658,984 [IMAGE AVAILABLE] L8: 3 of 9

ABSTRACT:
A permanent anti-static polycarbonate resin composition is comprises
(a) 50-95 parts by weight of an aromatic polycarbonate resin,
(b) 2-40 parts by weight of a block copolyamide resin,
(c) 0-50 parts by weight of an aromatic polyester resin, and
(d) 1-30 parts by weight of a multi-layered polymer having a structure comprising a core composed of a rubber-like polymer prepared from an alkyl acrylate monomer in which the carbon number of the alkyl group is 2-8, and an outer shell layer formed on the surface of the core and composed of a glass-like polymer prepared from an aromatic vinyl monomer or an aromatic vinyl monomer and a vinyl monomer copolymerizable therewith.

SUMMARY:

BSUM(75)

Said phosphorus-containing compounds having a spiro ring structure are commercially **available**, for instance, ADEK STAB **PEP**-36 and ADK STAB PEP-24G (trade name, produced by Asahi Denka Kogyo K. K.). These compounds are known as a stabilizer effective for inhibiting the reduction of molecular weight of an **aromatic** polycarbonate resin caused in an ester exchange reaction between an **aromatic** polycarbonate resin and a polyester resin. In the present invention, by use of this compound with a block copolyamide resin,. . .

4. 5,629,181, May 13, 1997, Synthesis of catechol from biomass-derived carbon sources; John W. Frost, et al., 435/156, 170 [IMAGE AVAILABLE]

US PAT NO: 5,629,181 [IMAGE AVAILABLE] L8: 4 of 9

ABSTRACT:

A method is provided for synthesizing catechol from a biomass-derived carbon source capable of being used as a host cell having a common pathway of aromatic amino acid biosynthesis. The method comprises the steps of biocatalytically converting the carbon source to 3-dehydroshikimate in said host cell, biocatalytically converting the DHS to protocatechuate, and decarboxylating the protocatechuate to form catechol. Also provided is a heterologous E. coli transformant characterized by the expression of genes encoding transhetolase, DAHP synthase, and DHQ synthase, further characterized by the constitutive expression of structural genes encoding 3-dehydroshikimate dehydratase and protocatechuate decarboxylase.

DETDESC:

DETD(4)

Host . . . use in the present invention are members of those genera capable of being utilized for industrial biosynthetic production of desired **aromatic** compounds. In particular, suitable host cells have an endogenous common pathway of **aromatic** amino acid biosynthesis. Common **aromatic** pathways are endogenous in a wide variety of microorganisms, and are used for the production of various **aromatic** compounds. As illustrated in FIG. 1, the common **aromatic** pathway leads from E4P and **PEP** (the **availability** of E4P being increased by the pentose phosphate pathway enzyme transketolase, encoded by the tkt gene) to chorismic acid with. . . intermediates in the pathway. The intermediates in the pathway include 3-deoxy-D-arabino-heptulosonic acid 7-phosphate (DAHP), 3-dehydroquinate (DHQ), 3-dehydroshikimate (DHS), shikimic acid, **shikimate** 3-phosphate (S3P), and 5-enolpyruvoylshikimate-3-phosphate (EPSP). The enzymes in the common pathway, and their respective genes, include DAHP synthase (aroF), DHQ synthase (aroB), DHQ dehydratase (aroD), **shikimate** dehydrogenase (aroE), **shikimate** kinase (aroL, aroK), EPSP synthase (aroA) and chorismate synthase (aroC).

5. 5,616,496, Apr. 1, 1997, Bacterial cell tranformants for production of cis, cis-muconic acid and catechol; John W. Frost, et al., 435/252.3, 142, 155, 156, 252.33, 320.1, 849, 852; 536/23.2 [IMAGE AVAILABLE]

US PAT NO: 5,616,496 [IMAGE AVAILABLE] L8: 5 of 9

ABSTRACT:
A heterologous cell transformant is provided that biocatalytically converts a carbon source to catechol and cis, cis muconic acid. The cell transformant expresses heterologous genes encoding the enzymes 3-dehydroshikimate dehydratase, protocatechuate decarboxylase, and catechol 1,2-dioxygenase.

DETDESC:

DETD(4)

Host . . . use in the present invention are members of those genera capable of being utilized for industrial biosynthetic production of desired **aromatic** compounds. In particular, suitable host cells have an endogenous common pathway of **aromatic** amino acid biosynthesis. Common **aromatic** pathways are endogenous in a wide variety of microorganisms, and are used for the production of various **aromatic** compounds. As illustrated in FIG. 1, the common **aromatic** pathway leads from E4P and **PEP** (the **availability** of E4P being increased by the pentose phosphate pathway enzyme transketolase, encoded by the tkt gene) to chorismic acid with. . . intermediates in the pathway. The intermediates in the pathway include 3-deoxy-D-arabino-heptulosonic acid 7-phosphate (DAHP), 3-dehydroquinate (DHQ), 3-dehydroshikimate (DHS), shikimic acid, **shikimate** 3-phosphate (S3P), and 5-enolpyruvoylshikimate-3-phosphate (EPSP). The enzymes in the common

pathway, and their respective genes, include DAHP synthase (aroF), DHQ synthase (aroB), DHQ dehydratase (aroD), **shikimate** dehydrogenase (aroE), **shikimate** kinase (aroL, aroK), EPSP synthase (aroA) and chorismate synthase (aroC).

=> log y

U.S. Patent & Trademark Office LOGOFF AT 09:46:03 ON 17 SEP 1998